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Accurate Pointing of Tungsten Welding Electrodes

The problem:

To develop a method for pointing tungsten electrodes for tungsten-inert gas (TIG) welding.

The solution:

The thoriated-tungsten used in the automatic TIG welding process can be pointed very accurately and quickly by using sodium nitrite (NaNO_2). Unlike the results obtained with grinding techniques, the point produced is smooth and no effort is necessary to hold the tungsten rod concentric. This sodium nitrite process takes 1/10 the time required for diamond wheel grinding and one can become proficient with very little practice. In addition, the chemically produced point can be used several times longer than ground points.

How it's done:

The thoriated-tungsten electrode rod is chucked (hand tight) in a drill press or similar device to rotate the rod in a vertical position. A slow rotation speed is necessary.

A torch is used to heat the end of the tungsten rod until it is red. The sodium nitrite in stick form is then touched to the heated rod and the point is produced. The chemical reaction caused by contact of the heated rod with the sodium nitrite keeps the rod red hot.

Notes:

1. This information may be of interest to the welding industry. The method reduces time and cost of preparing tungsten electrodes compared to conventional grinding techniques.
2. Requests for further information may be directed to:

Technology Utilization Officer
Division of Technical Information
AEC Headquarters
Washington, D.C. 20545
Reference: B71-10048

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to:

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